

Docket No. F-6842

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**REMARKS**

Claims 26 and 28 remain in this application. Claims 26, 28, 30, and 31 are rejected. Claims 30 and 31 are cancelled herein. Claims 1 - 25, 27, and 29 are previously cancelled. Claims 26 and 28 are amended herein to clarify the invention. No new matter is added by the amendments to the claims.

In the Office Action, claims 26 and 28 were rejected under 35 U.S.C. 103(a) as being obvious and unpatentable over US Patent 4,099,909 to Matsummura et al ("Matsummura et al") in view of Japanese Patent JP 4-11-283817A to Yamagami et al ("Yamagami et al") and Chinese Patent Cn 1125351 ("CN '351") or U.S. Patent 5,843,567 to Swift et al ("Swift et al").

The Examiner has stated that Matsummura discloses a motor comprising a stator (12) and a rotor assembly (11) having a rotor permanent magnet (21), which is shown to have a substantially doughnut-shaped body. The Examiner contends that Matsummura discloses substantially the same apparatus as that according to the present invention as recited according to previous claims 26 and 28 of the present application, except for a rotor made of SmFeN, with resin binder, wherein the size thereof is not greater than 10 micrometers ( $\mu\text{m}$ ).

The Examiner contends that Yamagami, however, discloses a resin-bonded SmFeN molded magnet, having a high heat resistance, size stability, mechanical strength, and good magnetic characteristics.

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The Examiner still further contends that it would have been known to a person of ordinary skill in the relevant art at the time the present invention was made, to leave a small air gap between the rotor and the stator of a motor, particularly for a miniature motor; and that a resin-bonded SmFeN powder molded magnet would enable precision in the rotor's dimensions to ensure a sufficient air gap therebetween.

From all of the foregoing, the Examiner concludes that it would have been obvious to a person of ordinary skill in the relevant art at the time the present invention was made, to modify a motor according to Matsummura by employing a resin-bonded SmFeN magnet according to Yamagami, as the rotor magnet in the Matsummura motor.

Regarding the limitation in the claims as to the particle size of the magnetic powder particles, the Examiner states that CN'351 discloses the use of SmFeN magnetic powder particles having a particle size of from 0.3 to 10  $\mu\text{m}$ .

Alternatively, the Examiner points out that Swift also discloses a magnetic powder having particle sizes from 1 nanometer to 10  $\mu\text{m}$ .

The Examiner concludes that it would have been obvious to a person of ordinary skill in the relevant art at the time the present invention was made to modify a motor according to Matsummura by using SmFeN powder material having a particle size of from 0.3 - 10  $\mu\text{m}$ , as disclosed in CN '351 or from 1 nm to 10

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$\mu\text{m}$ , as disclosed in Swift, for fabricating the resin-bonded SmFeN molded permanent magnet.

Claims 26 and 28 have been amended herein above to further recite that the rotor of the motor has a phosphate coating covering an outside surface of the molded body of the rotor magnet, and that the phosphate coating is an iron-hydrogen phosphate coating which has been sintered at a temperature below the decomposition temperature of SmFeN alloys, and combined with an unstable Fe of the Fe component included in the molded body.

Support for the present amendments to claims 26 and 28 is found in the original specification at page 4, last line - page 6, next-to-last line.

Applicants respectfully traverse the rejection and restate the arguments made in the Amendment previously filed in the case on May 5, 2003, as follows.

The present invention provides a rotor magnet comprising a cylindrical shaped molded body of a mixture of magnetic powder of SmFeN and a resin binder wherein said magnetic powder is in the form of particles of a size of not greater than  $10\ \mu\text{m}$  and uniformly and densely packed. Since the magnetic powder is in the form of particles of a size of not greater than  $10\ \mu\text{m}$  and uniformly and densely packed, it is possible to provide a rotor magnet that has no dispersion of poles. The dispersion of poles means unevenness of angles between magnetized poles and

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unevenness of peak values of surface inductive flux. Therefore, the rotor rotates smoothly.

In contrast to the present invention, Matsumura, US4088909 discloses a basic structure of a motor comprising: a stator (12) and a rotor assembly (11) having a rotor permanent magnet(21) and Yamagami, 7P411283817A discloses that resin-bonded-SmFeN-molded magnet would have high heat resistance, superior size stability, high mechanical strength and superior magnetic characteristics (maximum energy product: BHmax). Matsumura and Yamagami, however, fail to disclose or suggest the feature that the magnetic powder is in the form of particles of a size of not greater than 10  $\mu\text{m}$  and uniformly and densely packed.

To establish obviousness, "the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." MPEP §706.02(j) "Contents of a 35 U.S.C. §103 Rejection". Since the present invention has the above-mentioned feature that is not disclosed and suggested by Matsumura and Yamagami, it is possible to provide a rotor having an excellent characteristic with no dispersion of poles by incorporating a feature not disclosed

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nor suggested by the references. Thus, it is respectfully submitted that the rejected claims are not obvious in view of the cited references for the reasons stated above.

In view of the amendments to claims 26 and 28 made herein, Applicants further maintain that nothing in any of the cited references teaches, discloses, or suggests an iron-hydrogen phosphate coating applied to the rotor of the motor, and covering the outside surface of a molded body of a rotor magnet, and which coating has been sintered at a temperature below a decomposition temperature for SmFeN alloys, and which combines with an unstable Fe of the iron component in the molded body of the magnet.

In view of the amendments to claims 26 and 28 presented herein above, and in view of the foregoing arguments, reconsideration of the rejections of claims 26 and 28 and their allowance are respectfully requested.

In the Office Action, claims 30 and 31 were rejected under 35 U.S.C. 103 (a) as being obvious and unpatentable over Matsumura, Yamagami and CN '351 or Swift, and further in view of U.S. Patent 5,589,400 to Takahashi ("Takabashi") and Japanese Patent JP 361186402 to Takagi ("Takagi").

In view of the cancellation herein above of claim 30 and 31, it is respectfully submitted that this rejection is now moot.

No additional claims are added by this Amendment, therefore, no additional claims fees are due.

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Applicant respectfully requests a three month extension of time for responding to the Office Action. Please charge the fee of \$950.00 for the extension of time to Deposit Account No. 10-1250.

In view of the present Office Action having been made final, Applicants request early consideration of this Amendment, and indication by the Examiner as to its entry, and indication as to a finding of allowability of amended claims 26 and 28, so that in the event that the Amendment is not entered and/or the amended claims not found allowable, Applicants will have the opportunity to timely file a Notice of Appeal or a Request for Continued Examination (RCE) application in the case.

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited.

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No other fees are believed due with the filing of this Amendment, however, if any other fees are due, or if any overpayments have previously been made, they should be respectively charged and credited to Deposit Account No. 10-1250.

Respectfully submitted,  
JORDAN AND HAMBURG LLP

By Frank J. Jordan  
Frank J. Jordan  
Reg. No. 20,456  
Attorney for Applicants  
and,

By Howard R. Jaeger  
Howard R. Jaeger  
Reg. No. 31,376  
Attorney for Applicants

Jordan and Hamburg LLP  
122 East 42nd Street  
New York, New York 10168  
(212) 986-2340